

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of James R. Combes et al.

Group Art Unit: 1762

Application No.: 10/762,155

Examiner: William P. Fletcher III

Filed: January 21, 2004

Confirmation No.: 4954

For: PROCESS FOR DEPOSITING MARKING MATERIAL ONTO SUBSTRATE, SAID MARKING MATERIAL COMPRISING TONER PARTICLES COMPRISING POLYESTER RESIN AND POLYPYRROLE

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

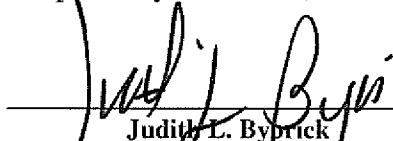
**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

LETTER

Pursuant to the Notification of Non-Compliant Appeal Brief, attached herewith is Appellants' revised Brief on Appeal in the above-identified application. An oral hearing is not requested.

No additional fee is believed to be required for this amendment. However, the undersigned Xerox Corporation attorney (or agent) hereby authorizes the charging of any necessary fees, other than the issue fee, to Xerox Corporation Deposit Account No. 24-0025. This also constitutes a request for any needed extension of time and authorization to charge all fees therefor to Xerox Corporation Deposit Account No. 24-0025.

Respectfully submitted,



Judith L. Byrnick

Signature under 37 CFR 1.33 & 34

Registration No. 32,606

Telephone No. 585-423-4564

Date April 20, 2007

Customer No.: 25453

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE HONORABLE BOARD OF PATENT APPEALS AND INTERFERENCES

IN RE THE APPLICATION OF JAMES R. COMBES ET AL.

Application No.: 10/762,155	:	Examiner: William P. Fletcher, III
Filed: January 21, 2004	:	Docket No. D/A0A23DD
Customer No. 25453	:	Confirmation No. 4954

APPEAL FROM GROUP 1762

PROCESS FOR DEPOSITING MARKING MATERIAL ONTO SUBSTRATE, SAID
MARKING MATERIAL COMPRISING TONER PARTICLES COMPRISING
POLYESTER RESIN AND POLYPYRROLE

BRIEF ON APPEAL

TABLE OF CONTENTS

	PAGE
1. REAL PARTY IN INTEREST	2
2. STATEMENT OF RELATED APPEALS AND INTERFERENCES	3
3. STATUS OF CLAIMS	4
4. STATUS OF AMENDMENTS	5
5. SUMMARY OF CLAIMED SUBJECT MATTER	6-7
6. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL	8
7. ARGUMENT	9-22
8. CONCLUSION	22
CLAIMS APPENDIX	24-32
EVIDENCE APPENDIX	33
RELATED PROCEEDINGS APPENDIX	34

1. **REAL PARTY IN INTEREST:**

The real party in interest for this appeal and the present application is Xerox Corporation, by way of an Assignment recorded in the U.S. Patent and Trademark Office at Reel 11338, Frame 632.

2. STATEMENT OF RELATED APPEALS AND INTERFERENCES:

There are no prior or pending appeals, interferences, or judicial proceedings, known to Appellants, Appellants' representative, or the Assignee, that may be related to, or which will directly affect or be directly affected by or have a bearing upon, the Board's decision in the pending appeal.

3. STATUS OF CLAIMS:

Claims 1 to 3, 6 to 14, 16, 17, and 20 to 29 are on appeal.

Claims 1 to 3, 6 to 14, 16, 17, and 20 to 29 are pending.

Claims 1 to 3, 6 to 14, 16, 17, and 20 to 29 are rejected.

Claims 4, 5, 15, 18, and 19 are cancelled.

4. STATUS OF AMENDMENTS:

Appellants filed an Amendment After Final Rejection on September 26, 2006. By an Advisory Action dated October 10, 2006, the Examiner indicated that the requested amendments had been entered.

5. SUMMARY OF CLAIMED SUBJECT MATTER:

The invention of claim 1 is directed to a process for depositing marking material onto a substrate. The general apparatus 110 employed is illustrated in Figures 6 through 13 and described at page 56, line 6 to page 64, line 3. The process comprises (a) providing a propellant 114 to a head structure 134, the head structure 134 having at least one channel 146 therein, the channel 146 having an exit orifice 156 with a width no larger than about 250 microns through which the propellant 114 can flow, the propellant 114 flowing through the channel 146 to form thereby a propellant stream having kinetic energy, the channel 146 directing the propellant stream toward the substrate, and (b) controllably introducing a particulate marking material 116 into the propellant stream in the channel 146, wherein the kinetic energy of the propellant particle stream causes the particulate marking material 116 to impact the substrate, and wherein the particulate marking material 116 comprises toner particles which comprise a polyester resin, an optional colorant, and polypyrrole, the toner particles having an average particle diameter of no more than about 10 microns and a particle size distribution of GSD equal to no more than about 1.25, (page 66, lines 23 and 24) wherein the toner particles are prepared by an emulsion aggregation process, (page 74, lines 16 to 27) the toner particles having an average bulk conductivity of at least about 10^{-11} Siemens per centimeter (page 100, lines 5 and 6).

The invention of claim 17 is directed to the process as described in claim 1, wherein the polypyrrole in the toner particles has at

least about 6 repeat monomer units and wherein the polypyrrole has no more than about 100 repeat monomer units (page 92, lines 13 to 16; page 116, lines 3 to 5).

**6. GROUNDS OF REJECTION TO BE REVIEWED ON
APPEAL:**

A. Whether claims 1 to 3, 6 to 9, 16, 17, and 22 to 29 are patentable under 35 U.S.C. §103(a) over Peeters et al. (U.S. Patent 6,328,409) in view of JP 03-100561.

A(1). Whether claim 17 is patentable under 35 U.S.C. §103(a) over Peeters et al. (U.S. Patent 6,328,409) in view of JP 03 100561.

B. Whether claims 10 to 14 are patentable under 35 U.S.C. §103(a) over Peeters et al. (U.S. Patent 6,328,409) in view of JP 03-100561 and further in view of Patel et al. (U.S. Patent 5,403,693).

C. Whether claims 20 and 21 are patentable under 35 U.S.C. §103(a) over Peeters et al. (U.S. Patent 6,328,409) in view of JP 03-100561 and further in view of Sacripante et al. (U.S. Patent 5,348,832).

7. ARGUMENT:

INTRODUCTION:

The present invention is directed to a process for depositing marking material onto a substrate. The process comprises (a) providing a propellant to a head structure, the head structure having at least one channel therein, the channel having an exit orifice with a width no larger than about 250 microns through which the propellant can flow, the propellant flowing through the channel to form thereby a propellant stream having kinetic energy, the channel directing the propellant stream toward the substrate, and (b) controllably introducing a particulate marking material into the propellant stream in the channel, wherein the kinetic energy of the propellant particle stream causes the particulate marking material to impact the substrate, and wherein the particulate marking material comprises toner particles which comprise a polyester resin, an optional colorant, and polypyrrole, the toner particles having an average particle diameter of no more than about 10 microns and a particle size distribution of GSD equal to no more than about 1.25, wherein the toner particles are prepared by an emulsion aggregation process, the toner particles having an average bulk conductivity of at least about 10^{-11} Siemens per centimeter.

A. Whether claims 1 to 3, 6 to 9, 16, 17, and 22 to 29 are patentable under 35 U.S.C. §103(a) over Peeters et al. (U.S. Patent 6,328,409) in view of JP 03-100561.

The Examiner has rejected claims 1 to 3, 6 to 9, 16, 17, and 22 to 29 as being unpatentable over Peeters et al. in view of

JP 03-100561. Peeters et al. is directed to a ballistic aerosol marking apparatus. As the Examiner has stated, nothing in this reference teaches or suggests the use therein of a particulate marking material comprising toner particles which comprise a polyester resin, an optional colorant, and polypyrrole, said toner particles having an average particle diameter of no more than about 10 microns and a particle size distribution of GSD equal to no more than about 1.25, wherein said toner particles are prepared by an emulsion aggregation process, said toner particles having an average bulk conductivity of at least about 10^{-11} Siemens per centimeter.

Japanese Patent 03-100561 discloses an electrophotographic toner characterized in that a conductive high polymer, such as polymers of aniline, pyrrole, thiophene, or derivatives thereof, is adhered to the surface of the core substance that forms the toner. The Examiner has pointed to nothing in this reference that teaches or suggests to one of ordinary skill in the art that it would be desirable to prepare a toner containing a polypyrrole by an emulsion aggregation process.

One of ordinary skill in the art would have no motivation to combine the teachings of these references. JP 03-100561 is directed to an electrophotographic toner. The Examiner has pointed to nothing in the teachings of this reference that would suggest to one of ordinary skill in the art that it would be desirable to use a marking material as disclosed therein in a ballistic aerosol marking device. Neither of the cited references suggests or teaches the desirability of combining the elements of the present invention as claimed. Obviousness cannot be

established by combining references to arrive at the claimed invention, absent some teaching, suggestion, or incentive supporting the combination. In re Geiger, 815 F.2d 686, 2 U.S.P.Q. 2d (BNA) 1276 (Fed. Cir. 1987); Carella v. Starlight Archery and Pro Line Co., 804 F.2d 135, 231 U.S.P.Q. (BNA) 644 (Fed. Cir. 1986); ACS Hospital Systems, Inc. v. Montefiore Hospital, 732 F.2d 1572, 221 U.S.P.Q. (BNA) 929 (Fed. Cir. 1984). When determining patentability under §103, the Examiner must consider the invention as a whole, and cannot view each element of the claim separately with respect to the prior art. See, e.g., Jones v. Hardy, 727 F.2d 1524, 220 U.S.P.Q. (BNA) 1021 (Fed. Cir. 1984). When prior art references require selective combination to render obvious a subsequent invention, there must be some reason for the combination other than the hindsight gleaned from the invention itself. Uniroyal Inc. v. Rudkin Wiley Corp., 837 F. 2d 1044, 5 U.S.P.Q. 2d (BNA) 1434 (Fed. Cir. 1988); Interconnect Planning Corp. v. Feil, 774 F. 2d 1132, 227 U.S.P.Q. (BNA) 543 (Fed. Cir. 1985). It is impermissible to use the claims as a frame and the prior art references as a mosaic to piece together a facsimile of the claimed invention. Uniroyal Inc. v. Rudkin Wiley Corp., 837 F. 2d 1044, 5 U.S.P.Q. 2d (BNA) 1434 (Fed. Cir. 1988); W. L. Gore and Associates, Inc. v. Garlock, Inc., 721 F. 2d 1540, 220 U.S.P.Q. (BNA) 303 (Fed. Cir. 1983). See also In re Clay, 966 F.2d 656, 23 U.S.P.Q. 2d (BNA) 1058 (Fed. Cir. 1992); Ex Parte Levengood, 28 U.S.P.Q. 2d (BNA) 1300 (Bd. Pat. App.& Int. 1993); In re Laskowski, 871 F.2d 115, 10 U.S.P.Q. 2d (BNA) 1397 (Fed. Cir. 1989); Yamanouchi Pharmaceutical Co. v. Danbury Pharmacal Inc., 231 F.3d 1339, 56 U.S.P.Q. 2d (BNA) 1641 (Fed. Cir. 2000). As the Court of Appeals for the Federal Circuit recently stated in Princeton Biochemicals,

Inc. v. Beckman Coulter, Inc., 411 F.3d 1332, 75 U.S.P.Q. 2d (BNA) 1051 (Fed.Cir. 2005):

The "as a whole" instruction in title 35 prevents evaluation of the invention part by part. ... Without this important requirement, an obviousness assessment might successfully break an invention into its component parts, then find a prior art reference corresponding to each component. ... This line of reasoning would import hindsight into the obviousness determination by using the invention as a roadmap to find its prior art components. Further, this improper method would discount the value of combining various existing features or principles in a new way to achieve a new result - often the essence of invention.

Princeton, 411 F.3d at 1337. Accordingly, Appellants are of the position that the present invention as recited in claims 1 to 3, 6 to 9, 16, 17, and 22 to 29 is patentable with respect to the teachings of these references.

In response to Appellants' position, the Examiner has stated that Peeters et al. broadly teaches a toner and does not limit the invention, neither prescribing nor proscribing any one toner exclusively, that because this reference is silent with respect to the particular toner composition, one of ordinary skill in the art would have looked to the prior art to find a suitable composition, and that the selection of a known material based on its suitability for its intended use has been held to support a prima facie case of obviousness.

Appellants disagree with this position. As the Examiner has stated, Peeters et al. neither prescribes nor proscribes any one toner exclusively. Accordingly, one of ordinary skill would not be led, based on the teachings of Peeters et al., to believe that a marking material such as that disclosed in JP 03-100561 would be either suitable or unsuitable for use in the Peeters et al. invention. While, as the Examiner

states, one of ordinary skill in the art may have looked to the prior art to find a suitable composition, nothing in Peeters et al. would have led one of ordinary skill in the art to believe that the particular composition disclosed in JP 03-100561 would be more suitable for use in the invention disclosed therein than the many, many thousands of other toner compositions disclosed in the prior art.

Similarly, nothing in JP 03-100561 teaches or suggests to one of ordinary skill in the art that it would be suitable for use in the invention disclosed in Peeters et al. The Examiner has stated that the selection of a known material based on its suitability for its intended use has been held to support a prima facie case of obviousness. In this instance, however, the intended use for the JP 03-100561 material is electrophotography, not ballistic aerosol marking. Accordingly, Appellants are of the position that the Examiner has failed to establish a prima facie case of obviousness, and respectfully request reconsideration and withdrawal of this ground for rejection.

In response to Appellants' position, the Examiner has stated that the question is whether there is something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination, not whether there is something in the prior art as a whole to suggest that the combination is the most desirable combination available, and further notes that the end use recognized in both references is that of marking a substrate with a toner.

Appellants are of the position that the methods of marking a substrate with a toner in these references is so different as to be considered nonanalogous. In Peeters et al., the marking material is

applied to the substrate by introducing it into a high-velocity propellant stream through a channel onto the substrate in an imagewise pattern. In JP 03-100561, the marking material is applied to the substrate by electrophotography, in which an electrostatic latent image is first generated on a photoreceptor by exposing it imagewise to a light/dark pattern to cause selective formation of a charge pattern, followed by applying to this pattern charged toner particles which adhere selectively either to the charged areas or the discharged areas to form an image of the toner particles, followed by transferring these toner particles in an image pattern to a substrate, followed by fusing the toner particles to the substrate. Appellants are of the position that the Examiner is suggesting a position that amounts to, at most, that it would be obvious to try the combination of elements in the cited references. Obvious to try, however, is not the standard by which obviousness is determined under 35 U.S.C. §103. In re Geiger, 815 F.2d 686, 2 U.S.P.Q. 2d 1276 (Fed. Cir. 1987); In re Yates, 663 F.2d 1054, 211 U.S.P.Q. (BNA) 1149 (CCPA 1981); In re Goodwin, 576 F.2d 375, 198 U.S.P.Q. (BNA) 1 (CCPA 1978).

Appellants direct attention to the decision in In re Geiger, 815 F.2d 686, 2 U.S.P.Q. 2d (BNA) 1276 (Fed. Cir. 1987). In this case, the invention was a method of inhibiting scale formation on and corrosion of metallic parts in cooling water systems by use of compositions containing (1) a sulfonated styrene/maleic anhydride (SSMA) copolymer, (2) a water soluble zinc compound, and (3) an organo-phosphorus acid compound or water soluble salt thereof. The Federal Circuit discussed three references cited against the claimed invention. The first, *li*, disclosed use in cooling water systems of scale and

corrosion prevention compositions comprising a polymeric component in combination with one or more compounds selected from the group consisting of inorganic phosphoric acids and water soluble salts thereof, phosphonic acids and water soluble salts thereof, organic phosphoric acid esters and water soluble salts thereof, and polyvalent metal salts; the li polymeric component could contain maleic acid and styrene monomers, but there was no disclosure of the specific copolymer SSMA required in Geiger's claims. The second reference, Snyder '733, disclosed a method for treating cooling water systems prone to scale formation by the addition of a composition comprising an acrylic acid/lower alkyl/hydroxy acrylate copolymer and another polymeric component, which could be SSMA or a styrene/maleic anhydride copolymer; this reference noted that boiler and cooling water systems share a common problem in regard to scale deposit formation and that use of a styrene/maleic anhydride copolymer to prevent scale in boiler water systems was known. The third reference, Hwa, disclosed a method for treating boiler water systems that are prone to scale formation by addition of a composition comprising SSMA and an organo-phosphorus acid component. The Board had held that, based upon the prior art and the fact that each of the three components of the composition used in the claimed method were conventionally employed in the art for treating cooling water systems, it would have been prima facie obvious, within the meaning of 35 U.S.C. §103, to employ these components in combination for their known functions and to optimize the amount of each additive. The Federal Circuit reversed, stating that li did not suggest use of SSMA as its claimed polymeric component and did not

require the presence of an organophosphorus acid compound or a zinc compound, that although Snyder '733 disclosed the use of SSMA, it was for the purpose of showing that it, or one of three other specifically recited copolymers, could be used in combination with yet another polymeric component to prevent scale formation, and that while Hwa did disclose the specifically-recited organophosphorus acid compound, it provided no suggestion to add a zinc compound to its disclosed combination of SSMA and organophosphorus acid compounds, or to use SSMA in combination with an organophosphorus acid compound in the treatment of a cooling water system, where the characteristics could differ significantly from those in Hwa's boiler water system. The court concluded, "At best, in view of these disclosures, one skilled in the art might find it obvious to try various combinations of these known scale and corrosion prevention agents. However, this is not the standard of 35 U.S.C. §103." See also Ecolchem Inc. v. Southern California Edison, 227 F.3d 1361, 56 U.S.P.Q. 2d (BNA) 1065, 1075 (Fed. Cir. 2000).

"(T)he examiner must show reasons that the skilled artisan, confronted with the same problems as the inventor and with no knowledge of the claimed invention, would select the elements from the cited prior art references for combination in the manner claimed." In re Rouffet, 149 F.3d 1350, 47 U.S.P.Q.2d (BNA) 1453, 1458 (Fed. Cir. 1998). In the instant situation, the Examiner has failed to meet this burden of establishing a prima facie case of obviousness, and Appellants accordingly are of the position that the pending claims are patentable with respect to the cited references.

In addition, Appellants point out that even if these references were combined as suggested by the Examiner, neither reference teaches or suggests the preparation of a marking material by an emulsion aggregation process. Accordingly, even if these references were combined as suggested, one of ordinary skill in the art would not arrive at the instant invention.

In response to Appellants' position, the Examiner has stated that JP 03-100561 clearly teaches polymerization in an "emulsion suspension", which, because Appellants' specification provides no definition of "an emulsion aggregation process" that excludes such a process as this one taught by JP 03-100561, reads on the claimed invention.

Appellants disagree with this position. The emulsion aggregation process is specifically defined in the present specification at, for example, page 74, lines 17 to 27. This process entails (1) preparing a colorant (such as a pigment) dispersion in a solvent (such as water), which dispersion comprises a colorant, a first ionic surfactant, and an optional charge control agent; (2) shearing the colorant dispersion with a latex mixture comprising (a) a counterionic surfactant with a charge polarity of opposite sign to that of said first ionic surfactant, (b) a nonionic surfactant, and (c) a resin, thereby causing flocculation or heterocoagulation of formed particles of colorant, resin, and optional charge control agent to form electrostatically bound aggregates, and (3) heating the electrostatically bound aggregates to form stable aggregates of at least about 1 micron in average particle diameter. Further details regarding the process are disclosed in the specification

and illustrated in the working examples. In addition, previous U.S. patents disclosing the emulsion aggregation process are incorporated by reference into the specification. The Examiner has pointed to nothing in JP 03-100561 that teaches or suggests such a process.

A(1). Whether claim 17 is patentable under 35 U.S.C. §103(a) over Peeters et al. (U.S. Patent 6,328,409) in view of JP 03-100561.

Appellants also point out that Japanese Patent 03-100561 teaches a toner having a high polymer adhered to the surface of the core. Nothing in this reference teaches or suggests a toner as recited in claim 17, comprising particles of a resin and an optional colorant, said toner particles having coated thereon a polypyrrole, said polypyrrole having no more than about 100 repeat monomer units. Accordingly, Appellants are of the position that this claim is particularly patentable with respect to the teachings of this reference.

In response to Appellants' position, the Examiner has stated that there is no evidence of record establishing the definition of a "high polymer" and that Appellants' polypyrrole having not more than about 100 repeat monomer units is exclusive of a "high polymer" so defined. The Examiner has produced a definition from *Alger's Polymer Science Dictionary*, 2nd Edition, defining a "high polymer" as one having a high degree of polymerization and hence of a high molecular mass, and typically a degree of polymerization of more than about 100. The Examiner has further cited Alger to indicate that "degree of polymerization" refers to the number of repeat monomer units.

The Examiner has argued that the ordinary and conventional meaning of the term "high polymer" is inconclusive of polymers having "about 100 monomer units". Appellants, however, are of the position that the definition provided by the Examiner supports Appellants' position that, while JP 03-10056 teaches a toner having a high polymer adhered to the surface of the core, the toner as recited in claim 17 comprises particles of a resin and an optional colorant, said toner particles having coated thereon a polypyrrole, said polypyrrole having no more than about 100 repeat monomer units, and that this claim is thus particularly in condition for allowance. As the dictionary definition indicates, high polymers are typically those with a degree of polymerization of more than about 100, whereas the polypyrrole recited in claim 17 has no more than about 100 repeat monomer units. Appellants believe that these two definitions are clearly mutually exclusive.

B. Whether claims 10 to 14 are patentable under 35 U.S.C. §103(a) over Peeters et al. (U.S. Patent 6,328,409) in view of JP 03-100561 and further in view of Patel et al. (U.S. Patent 5,403,693).

The Examiner has also rejected claims 10 to 14 as being unpatentable over Peeters et al. in view of JP 03-100561 and further in view of Patel et al. Patel et al. discloses a process for the preparation of toner compositions with controlled particle size comprising: (i) preparing a pigment dispersion in water, which dispersion comprises a pigment, an ionic surfactant in amounts of from about 0.5 to about 10 percent by weight of water, and an optional charge control agent; (ii) shearing the

pigment dispersion with a latex mixture comprising a counterionic surfactant with a charge polarity of opposite sign to that of said ionic surfactant, a nonionic surfactant, and resin particles, thereby causing a flocculation or heterocoagulation of the formed particles of pigment, resin, and charge control agent; (iii) stirring the resulting sheared viscous mixture of (ii) at from about 300 to about 1,000 revolutions per minute to form electrostatically bound substantially stable toner size aggregates with a narrow particle size distribution; (iv) reducing the stirring speed in (iii) to from about 100 to about 600 revolutions per minute, and subsequently adding further anionic or nonionic surfactant in the range of from about 0.1 to about 10 percent by weight of water to control, prevent, or minimize further growth or enlargement of the particles in the coalescence step (iii); and (v) heating and coalescing from about 5 to about 50°C above about the resin glass transition temperature, T_g , which resin T_g is from between about 45°C to about 90°C and preferably from between about 50°C and about 80°C the statically bound aggregated particles to form said toner composition comprised of resin, pigment and optional charge control agent.

The Examiner has applied this reference as teaching the specific emulsion aggregation process recited in claims 10 through 14, and is of the position that this combination of references renders obvious these claims.

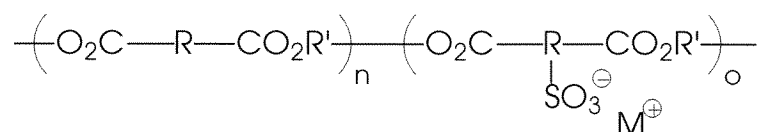
Appellants disagree with this position for the reasons set forth hereinabove with respect to the rejection of claims 1 to 3, 6 to 9, 16, 17, and 22 to 29. More specifically, one of ordinary skill in the art would have no reason to consider these references in combination, and would

have no reason to believe that it would be desirable to use these electrophotographic toner materials in a ballistic aerosol marking process. Accordingly, Appellants are of the position that the present invention as recited in claims 10 through 14 is patentable with respect to these references.

Further, Patel et al. is directed to processes for making toners for use in xerographic and ionographic devices. The Examiner has pointed to nothing in the teachings of either Patel et al. or the primary references that would either teach or suggest to one of ordinary skill in the art the desirability or suitability of using materials as prepared by these processes in a ballistic aerosol marking device.

C. Whether claims 20 and 21 are patentable under 35 U.S.C. §103(a) over Peeters et al. (U.S. Patent 6,328,409) in view of JP 03-100561 and further in view of Sacripante et al. (U.S. Patent 5,348,832).

The Examiner has also rejected claims 20 and 21 under §103 as being unpatentable over Peeters et al. in view of JP 03-100561 and further in view of Sacripante et al. Sacripante et al. discloses a toner composition comprising pigment and a sulfonated polyester of the formula or as essentially represented by the formula



wherein M is an ion independently selected from the group consisting of hydrogen, ammonium, an alkali metal ion, an alkaline earth metal ion,

and a metal ion, R is independently selected from the group consisting of aryl and alkyl, R' is independently selected from the group consisting of alkyl and oxyalkylene, n and o represent random segments, and the sum of n and o are equal to 100 mole percent.

The Examiner has applied this reference as teaching a toner teaching a polyester coated with the claimed polypyrrole, and is of the position that this combination of references renders obvious the present invention as recited in claims 20 and 21.

Appellants disagree with this position for the reasons set forth hereinabove with respect to the rejection of claims 1 to 3, 6 to 9, 16, 17, and 22 to 29. More specifically, one of ordinary skill in the art would have no reason to consider these references in combination, and would have no reason to believe that it would be desirable to use these electrophotographic toner materials in a ballistic aerosol marking process. Accordingly, Appellants are of the position that the present invention as recited in claims 20 and 21 is patentable with respect to these references.

8. CONCLUSION:

For the reasons set forth herein, Appellants are of the position that the claims of the present application are patentable with respect to the prior art cited by the Examiner, and accordingly respectfully request that the Board of Patent Appeals and Interferences reverse the Examiner's rejections of the claims.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Judith L. Byorick", is written over a horizontal line.

Judith L. Byorick
Attorney for Appellant(s)
Registration No. 32,606

JLB/cw

April 20, 2007

Xerox Corporation
Xerox Square 020A
Rochester, New York 14644
Telephone: 585-423-4564

CLAIMS APPENDIX:**CLAIMS APPEALED:**

1. (Original) A process for depositing marking material onto a substrate which comprises (a) providing a propellant to a head structure, said head structure having at least one channel therein, said channel having an exit orifice with a width no larger than about 250 microns through which the propellant can flow, said propellant flowing through the channel to form thereby a propellant stream having kinetic energy, said channel directing the propellant stream toward the substrate, and (b) controllably introducing a particulate marking material into the propellant stream in the channel, wherein the kinetic energy of the propellant particle stream causes the particulate marking material to impact the substrate, and wherein the particulate marking material comprises toner particles which comprise a polyester resin, an optional colorant, and polypyrrole, said toner particles having an average particle diameter of no more than about 10 microns and a particle size distribution of GSD equal to no more than about 1.25, wherein said toner particles are prepared by an emulsion aggregation process, said toner particles having an average bulk conductivity of at least about 10^{-11} Siemens per centimeter.

2. (Previously Presented) A process according to claim 1 wherein the toner particles have an average particle diameter of no more than about 7 microns.

3. (Original) A process according to claim 1 wherein the toner particles comprise a core comprising the polyester resin and optional colorant and, coated on the core, a coating comprising the polypyrrole.

6. (Original) A process according to claim 1 wherein the polyester resin is a poly(1,2-propylene-5-sulfoisophthalate), a poly(neopentylene-5-sulfoisophthalate), a poly(diethylene-5-sulfoisophthalate), a copoly(1,2-propylene-5-sulfoisophthalate)-copoly-(1,2-propylene-terephthalate phthalate), a copoly(1,2-propylene-diethylene-5-sulfoisophthalate)-copoly-(1,2-propylene-diethylene-terephthalate phthalate), a copoly(ethylene-neopentylene-5-sulfoisophthalate)-copoly-(ethylene-neopentylene-terephthalate-phthalate), a copoly(propoxylated bisphenol A)-copoly-(propoxylated bisphenol A-5-sulfoisophthalate), a copoly(ethylene-terephthalate)-copoly-(ethylene-5-sulfo-isophthalate), a copoly(propylene-terephthalate)-copoly-(propylene-5-sulfo-isophthalate), a copoly(diethylene-terephthalate)-copoly-(diethylene-5-sulfo-isophthalate), a copoly(propylene-diethylene-terephthalate)-copoly-(propylene-diethylene-5-sulfoisophthalate), a copoly(propylene-butylene-terephthalate)-copoly-(propylene-butylene-5-sulfo-isophthalate), a copoly(propoxylated bisphenol-A-fumarate)-copoly(propoxylated bisphenol A-5-sulfo-isophthalate), a copoly(ethoxylated bisphenol-A-fumarate)-copoly(ethoxylated bisphenol-A-5-sulfo-isophthalate), a copoly(ethoxylated bisphenol-A-maleate)-copoly(ethoxylated bisphenol-A-5-sulfo-isophthalate), a copoly(propylene-diethylene terephthalate)-copoly(propylene-5-sulfoisophthalate), a copoly(neopentyl-terephthalate)-copoly-(neopentyl-5-sulfoisophthalate), or a mixture thereof.

7. (Original) A process according to claim 1 wherein the resin is present in the toner particles in an amount of at least about 75 percent by weight of the toner particles and wherein the resin is present in the toner particles in an amount of no more than about 99 percent by weight of the toner particles.

8. (Original) A process according to claim 1 wherein the toner particles further comprise a pigment colorant.

9. (Original) A process according to claim 1 wherein the toner particles contain a colorant, said colorant being present in an amount of at least about 1 percent by weight of the toner particles, and said colorant being present in an amount of no more than about 25 percent by weight of the toner particles.

10. (Original) A process according to claim 1 wherein the emulsion aggregation process comprises (1) shearing a first ionic surfactant with a latex mixture comprising (a) a counterionic surfactant with a charge polarity of opposite sign to that of said first ionic surfactant, (b) a nonionic surfactant, and (c) a polyester resin, thereby causing flocculation or heterocoagulation of formed particles of resin to form electrostatically bound aggregates; and (2) heating the electrostatically bound aggregates to form aggregates of at least about 1 micron in average particle diameter.

11. (Original) A process according to claim 1 wherein the emulsion aggregation process comprises (1) preparing a colorant dispersion in a solvent, which dispersion comprises a colorant and a first ionic surfactant; (2) shearing the colorant dispersion with a latex mixture comprising (a) a counterionic surfactant with a charge polarity of opposite sign to that of said first ionic surfactant, (b) a nonionic surfactant, and (c) a polyester resin, thereby causing flocculation or heterocoagulation of formed particles of colorant and resin to form electrostatically bound aggregates; and (3) heating the electrostatically bound aggregates to form aggregates of at least about 1 micron in average particle diameter.

12. (Original) A process according to claim 1 wherein the emulsion aggregation process comprises (1) shearing an ionic surfactant with a latex mixture comprising (a) a flocculating agent, (b) a nonionic surfactant, and (c) a polyester resin, thereby causing flocculation or heterocoagulation of formed particles of colorant and resin to form electrostatically bound aggregates; and (2) heating the electrostatically bound aggregates to form aggregates of at least about 1 micron in average particle diameter.

13. (Original) A process according to claim 1 wherein the emulsion aggregation process comprises (1) preparing a colorant dispersion in a solvent, which dispersion comprises a colorant and an ionic surfactant; (2) shearing the colorant dispersion with a latex mixture comprising (a) a flocculating agent, (b) a nonionic surfactant, and (c) a polyester resin, thereby causing flocculation or heterocoagulation of formed particles of colorant and resin to form electrostatically bound aggregates; and (3) heating the electrostatically bound aggregates to form aggregates of at least about 1 micron in average particle diameter.

14. (Original) A process according to claim 1 wherein the emulsion aggregation process comprises (1) preparing a colloidal solution comprising a polyester resin and an optional colorant, and (2) adding to the colloidal solution an aqueous solution containing a coalescence agent comprising an ionic metal salt to form toner particles.

16. (Original) A process according to claim 1 wherein the polypyrrole has at least about 3 repeat monomer units.

17. (Original) A process according to claim 1 wherein the polypyrrole has at least about 6 repeat monomer units and wherein the polypyrrole has no more than about 100 repeat monomer units.

20. (Original) A process according to claim 1 wherein the polypyrrole is doped with anions selected from p-toluene sulfonate, camphor sulfonate, benzene sulfonate, naphthalene sulfonate, dodecyl sulfonate, dodecylbenzene sulfonate, dialkyl benzenedialkyl sulfonates, para-ethylbenzene sulfonate, alkyl naphthalene sulfonates, poly(styrene sulfonate), or mixtures thereof.

21. (Original) A process according to claim 1 wherein the polypyrrole is doped with anions selected from p-toluene sulfonate, camphor sulfonate, benzene sulfonate, naphthalene sulfonate, dodecyl sulfonate, dodecylbenzene sulfonate, 1,3-benzene disulfonate, para-ethylbenzene sulfonate, 1,5-naphthalene disulfonate, 2-naphthalene disulfonate, poly(styrene sulfonate), or mixtures thereof.

22. (Original) A process according to claim 1 wherein the polypyrrole is doped with a dopant present in an amount of at least about 0.1 molar equivalent of dopant per molar equivalent of pyrrole monomer and present in an amount of no more than about 5 molar equivalents of dopant per molar equivalent of pyrrole monomer.

23. (Original) A process according to claim 1 wherein the polypyrrole is doped with a dopant present in an amount of at least about 0.25 molar equivalent of dopant per molar equivalent of pyrrole monomer and present in an amount of no more than about 4 molar equivalents of dopant per molar equivalent of pyrrole monomer.

24. (Original) A process according to claim 1 wherein the polypyrrole is doped with a dopant present in an amount of at least about 0.5 molar equivalent of dopant per molar equivalent of pyrrole monomer and present in an amount of no more than about 3 molar equivalents of dopant per molar equivalent of pyrrole monomer.

25. (Previously Presented) A process according to claim 1 wherein the toner particles have an average bulk conductivity of no less than about 10^{-7} Siemens per centimeter, and wherein the toner particles have an average bulk conductivity of no more than about 10 Siemens per centimeter.

26. (Previously Presented) A process according to claim 1 wherein the toner particles have an average bulk conductivity of no more than about 10 Siemens per centimeter.

27. (Previously Presented) A process according to claim 1 wherein the toner particles have an average bulk conductivity of no more than about 10^{-7} Siemens per centimeter.

28. (Previously Presented) A process according to claim 1 wherein the polypyrrole is present in an amount of at least about 5 weight percent of the toner particle mass and wherein the polypyrrole is present in an amount of no more than about 20 weight percent of the toner particle mass.

29. (Original) A process according to claim 1 wherein each said channel has a converging region and a diverging region, and wherein said propellant is introduced in said converging region and flows into said diverging region, whereby said propellant is at a first velocity and first pressure in said converging region and a second velocity and a second pressure in said diverging region, said first pressure greater than said second pressure and said first velocity less than said second velocity.

EVIDENCE APPENDIX:

None.

RELATED PROCEEDINGS APPENDIX:

None.